LAKE VIEW BIBLE CHAPEL (PWSNO 1090075)
SOURCE WATER ASSESSMENT REPORT

December 17, 2002

State of Idaho
Department of Environmental Quality

SOURCE WATER ASSESSMENT FOR LAKE VIEW BIBLE CHAPEL

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Lake View Bible Chapel, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Lake View Bible Chapel* describes factors used to assess the well's susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use inside the delineation boundaries, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Lake View Bible Chapel is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should <u>not</u> be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. Lake View Bible Chapel is located adjacent to Highway 200 near East Hope, Idaho. The well, serving a residence and the chapel, was drilled in 1972 to a depth of 53 feet. The 6-inch steel casing extends from16 inches above the concrete floor of the pump house to the full depth of the well with perforations from 47 to 53 feet below ground. The static water level is 30 feet below land surface. The well log reports mixtures of gravel, sand, boulders, clay and silt for the entire depth of the well. Both the casing and the 18-foot deep surface seal terminate in permeable soils. Current Idaho Department of Water Resources regulations for public drinking water wells require a minimum surface seal depth of 20 feet in unconsolidated formations.

A sanitary survey of the water system in July 1996 found several construction deficiencies that were remedied by November 1996, bringing the chapel into compliance with *Idaho Rules for Public Drinking Water Systems.*

Well Site Characteristics. Hydrologic sensitivity scores are derived from information on the well log and from the soil drainage classification inside the recharge zone delineated for your well. Soils in the well recharge zone for the Lake View Bible Chapel well are generally moderately well drained to well drained. Soils in these drainage classes provide little protection against migration of contaminants toward the well. Soils above the relatively shallow water table at the well site contain some silt and clay, but they are mixed with coarser materials including sand, gravel and boulders and do not form a continuous shield against vertical transport of contaminants.

Potential Contaminant Inventory. The 1000-foot buffer zone delineated for the Lake View Bible Chapel well covers an area that includes a marina and commercial development with fuel storage tanks. Synthetic and volatile organic chemicals are the chief potential contaminants associated with these types of facilities. A rail line behind the chapel runs parallel to Highway 200. Accidents on major transportation corridors can the source of every class of regulated contaminants. An inspection of the Lake View Bible Chapel water system in April 2001 determined that the well draws from ground water that is not directly influenced by surface water, so the lake and a small stream about 270 feet north of the well were not counted as potential sources of microbial contamination.

Water Quality History. Lake View Bible Chapel has had no persistent water quality problems. Making necessary repairs and disinfecting the system successfully dealt with the microbial contamination that prompted the 1996 sanitary survey. All subsequent quarterly tests for total coliform bacteria have been negative. No nitrates have been detected in required annual testing for the compound.

Susceptibility to Contamination. An analysis of the Lake View Bible Chapel well, incorporating information from the public water system file and the potential contaminant inventory, ranked the well moderately susceptible to all classes of regulated contaminants. Local geology accounts for most of the risk factors seen at the Lake View Bible Chapel well. Drilled into an unconsolidated formation without significant clay beds, the well draws from a relatively shallow water table. The complete analysis worksheet for your well is on page 6 of this report. Formulas used to compute final scores and susceptibility rankings are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Continuing to operate and maintain the well in compliance with Idaho Rules for Public Drinking Water Systems is the most important drinking water protection tool available Lake View Bible Chapel. The chapel already has some substantial protections in place since the well head is located inside a pump house that is locked to prevent unauthorized access. It might be helpful to mark off the sanitary setback zone (50-foot radius around the well) with flagging or a fence as a reminder to keep this area free from the use or storage of landscape and building maintenance chemicals and parked vehicles.
Every system should develop an emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website (http:// www.deq.state.id.us/water/water1.htm) to guide systems through the emergency planning process. Drinking water protection partnerships with businesses in the capture zone and neighboring landowners should also be established. Some of them may not be aware that their property is in a sensitive area where household, maintenance or business practices could have a negative impact on public drinking water supplies.

The system should also investigate ground water stewardship programs like Home*A*Syst. These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic tank management, petroleum product storage, handling and storing lawn and household chemicals and similar activities. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

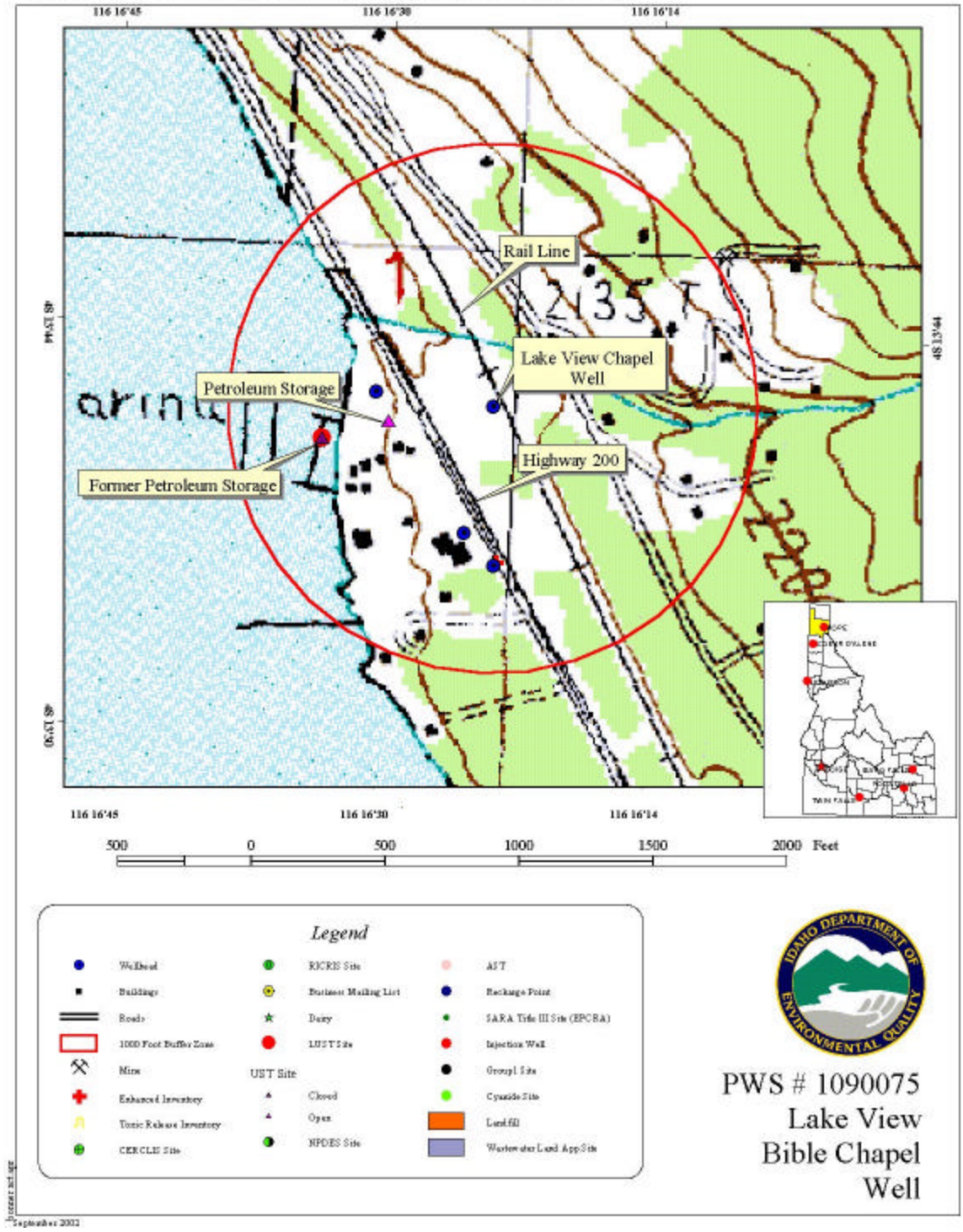
Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: http:// www.deq.state.id.us/water/water1.htm

Figure 1. Lake View Bible Chapel Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name : **LAKE VIEW BIBLE CHAPEL** Well # : **WELL #1**

Public Water System Number : **1090075** 9/3/02 8:13:40 AM

1. System Construction		SCORE			
Drill Date	6/3/72				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1996			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	NO	1			
Total System Construction Score		**5**			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		**6**			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use		Score	Score	Score	Score
Land Use	SUBURBAN	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score		**0**	**0**	**0**	**0**
Potential Contaminant / Land Use - 1000-foot Radius					
Contaminant sources present (Number of Sources)	YES	1	2	2	1
(Score = # Sources X 2) 8 Points Maximum		2	4	4	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
4 Points Maximum		1	1	1	
1000-foot Radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use 1000-foot Radius	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - 1000-foot Radius		**3**	**5**	**5**	**2**
Cumulative Potential Contaminant / Land Use Score		**3**	**5**	**5**	**2**
4. Final Susceptibility Source Score		**12**	**12**	**12**	**12**
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

0 - 5 Low Susceptibility
6 - 12 Moderate Susceptibility
> 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.